

I CLAIM:

1. A mouse adapted to provide electrical signals to a computer, said mouse comprising:

a housing;

5 a wheel mounted rotatably in said housing and having opposite left and right sides and a portion exposed from said housing for user operation;

20 a shaft extending in an axial direction through a center of said wheel and secured thereto, said shaft having two opposite ends disposed at said left and right sides of said wheel, respectively, said wheel being operable to move together with said shaft in a radial direction relative to said shaft from an upper position to a lower position;

25 a detecting unit disposed in said housing and adapted to provide electrical signals to the computer upon detecting movement of said wheel; and

a spring unit mounted in said housing and including opposing first and second coil parts, each of which is sleeved on a respective one of said opposite ends of said shaft so as to permit rotation of said wheel together with said shaft relative to said first and second coil parts and so as to be movable together with said wheel and said shaft in said radial direction, and each of which has opposing first and second end sections that diverge therefrom to define an angle therebetween and that slidably abut against

20094967-030902

said housing so as to permit mounting of said wheel in said housing, said angle being enlarged when said wheel is moved together with said shaft and said first and second coil parts from said upper position to said lower position by an external force so as to provide an urging force to move said wheel together with said shaft and said first and second coil parts from said lower position to said upper position when said wheel is relieved from the external force.

10 2. The mouse of Claim 1, wherein said first end sections of said first and second coil parts are disposed between said second end sections of said first and second coil parts, and are integrally connected to and cooperate with each other to form a U-shaped part of said spring unit, said housing having a mounting arm that projects inwardly therefrom at a front side of said wheel and that is formed with a guide groove which receives said U-shaped part and which permits sliding movement of said U-shaped part therein when said wheel is moved in said radial direction.

15 3. The mouse of Claim 2, wherein said second end section of each of said first and second coil parts has an L-shaped free end, said housing further having a pair of spaced apart pivot ears that project inwardly therefrom at a rear side of said wheel opposite to said mounting arm, said L-shaped free end of said second end section of each of said first and

second coil parts being pivoted to a respective one of said pivot ears so as to permit rotation of said second end sections when said wheel is moved in said radial direction.

- 5 4. The mouse of Claim 3, wherein said wheel has an annular inner wall that confines an inner space and that is formed with a series of alternately disposed ridges and grooves, said detecting unit including a microswitch mounted in said housing for providing one
10 of the electrical signals to the computer upon actuation, said mouse further comprising an actuator that includes a cylindrical mounting portion disposed in said inner space, sleeved around said shaft between said first and second coil parts, and engaging said
15 first end section of one of said first and second coil parts so as to be held by said spring unit, said actuator further including a pressing plate projecting from said mounting portion outwardly of said inner space for actuating said microswitch when
20 said wheel is moved to said lower position, and a friction member projecting from said mounting portion toward said inner wall and having two opposing tongues which releasably engage two of said grooves upon rotation of said wheel by a digit of the user.